FINAL

CLEAN AIR ACT SECTION 112(r) INSPECTION REPORT
Star of the West Milling Co. New York
Churchville, NY

GENERAL INFORMATION

Stationary Source	Star of the West Milling Co. New York
Date of Inspection	November 20, 2009
USEPA Inspector	Francesco Maimone – USEPA, REGION II (Edison, NJ)
Contract Auditor	Neil Mulvey, Sullivan Group (Subcontractor)
Description of Activities	• Opening meeting with facility representative. • Program audit. • Closing meeting with facility representatives. Program audit consisted of the following activities: 1. Document review. 2. Field verification. 3. Personnel interviews

STATIONARY SOURCE INFORMATION

EPA Facility ID #	1000 0019 9297
Date of Latest Submission (used for RMP inspection)	Receipt Date: June 18, 2007 (First Time) Anniversary Date: June 14, 2012
Facility Location	35 Main Street Churchville, NY 14428 Monroe County Tel. (585) 293-3030
Number of Employees	*RMP*Submit* states 19 employees (per RMP registration)

Description of Surrounding Area	The facility is located on 7.5 acres in downtown Churchville, NY. The facility is located on Main Street and is immediately surrounded by retail businesses (e.g., banks, post office, pharmacy, pizza store, etc.). The nearest residential property is approximately 75-ft. from the facility property line.
Participants	Participants included representatives from: Francesco Maimone, USEPA – Region II, Edison, NJ Neil Mulvey, USEPA Contractor Francois R. Lachance, Manager – Star of the West Co. New York* Dick Widger, Superintendent – Start of the West Co. New York Harry Myers, Sales / Service Representative – Caravan Ingredients** * Lead representative for Star of the West Co. New York ** Developed RMP/PSM Program

REGISTRATION INFORMATION

Process ID #	70527 – Chlorine flour treatment
Program Level (as reported in RMP)	Program 3
Process Chemicals	Chlorine @ 12,000-lbs.
NAICS Code	311211 (Flour Milling)

NOTE:

Several of the RMP programs were reviewed by the USEPA inspector and are therefore not included in this report. Those RMP elements reviewed by the USEPA inspector are duly noted.

GENERAL COMMENTS

Star of the West purchased the mill from a farmer's cooperative in 2000. The mill in Churchville, NY is one of five flour mills owned by Star of the West (headquarters in Frankenmuth, MI).

The facility processes approximately 3,500,000-bushels of wheat per year (wheat is approximately 60-lbs./bushel). It takes approximately 2.35 bushels to produce 100-lbs. of flour. The facility produces approximately 500,000-lbs. of flour per day. The flour mill is designed to mill soft red and white winter wheat for specialty baking flour used in cakes, cookies, and pastries. The facility operates 24-hours/day, 6-7 days/week.

Chlorine is used in the milling process for whitening (i.e., bleaching) and for pH control. The chlorination system utilizes chlorine supplied in 1-ton cylinders. Three cylinders are on-line at any one time (i.e., connected to feed manifold with valves opened), with three additional cylinders on stand-by (i.e., connected to feed manifold with valves closed). The ton cylinders are stored in a ventilated, concrete block room within a concrete building that is secured to prevent unauthorized access.

Chlorine gas is fed from the cylinders via a common manifold through an air actuated ball valve through a low pressure switch, vacuum regulator, and pressure check valve to the chlorinator. The chlorinator meters the flow of chlorine gas to three agitators. The agitators put the flour into suspension for thorough contact with the chlorine gas.

The chlorine cylinders are in a secured concrete room on the first floor of the mill (i.e., storage room). The chlorinator is on the first floor in the flour processing area. Flex lines carry the chlorine gas from the chlorinator on the first floor up to agitators on the fourth floor of the mill.

The chlorine feed rate is approximately 100 – 600 ounces/hour. The mill uses approximately three 1-ton chlorine cylinders per month. Chlorine cylinders are delivered to the facility via flatbed truck from Jones Chemical.

Chlorine sensors, one located in the storage room and one located near the agitators, activate an audible alarm at 1 PPM (intermittent) and 5 PPM (continuous). The chlorine detector in the storage room provides a digital PPM readout at the entrance to the room.

A ventilation fan in the chlorine storage room is manually controlled.

Facility management stated that all manual valves on the chlorine feed system are closed when the facility is not operating.

At the time of this inspection, six 1-ton cylinders were observed on-site.

The site Manager is responsible for all operations on-site. The Mill Superintendent is responsible for production, including operation of the chlorination system. There are

three millers who operate the mill (one for each of three shifts). The first and second shifts also have packers and loaders on-duty.

Routine maintenance of the chlorine system is contracted out to a third party, Caravan Ingredients. Caravan performs regularly scheduled and troubleshooting maintenance on the chlorine feed system. Facility management explained that Caravan Ingredients was also responsible for developing the written RMP programs and procedures.

RMP DOCUMENTATION

RMP documents are contained in three binders, including:

- PSM Binder – written RMP / PSM programs and procedures.
- RMP Binder – off-site consequence analysis information, emergency action plan, and EPCRA reporting information.
- PSM Manual for Chlorine.

While facility management demonstrated minimal understanding of the RMP requirements and the facility RMP documentation and program implementation, the Caravan Ingredients representative demonstrated a good understanding of the facility's RMP programs and procedures.

Following are comments regarding specific RMP program elements reviewed by N. P. Mulvey. (Note that as described above, some RMP elements were reviewed by the USEPA inspector and are therefore not included in this report).

Management System [*40 CFR 68.15*] & Registration

Reviewed by USEPA.

Process Safety Information (PSI) [*40 CFR 68.65*]

The facility maintains extensive process safety information, including:

- MSDS for chlorine
- Block flow diagram (BFD)
- Piping and instrument diagram (P&ID)
- Electrical area classification

The PSM Manual for Chlorine includes the following codes and standards:

- Chlorine Institute Manual - The Chlorine Manual, 6th Edition
- Chlorine Institute Manual - Pamphlet 6 – Piping System for Dry Chlorine, Edition 14; 12/98

- Chlorine Institute Manual Pamphlet 63 – First Aid, Medical Management / Surveillance and Occupational Hygiene Monitoring Practices for Chlorine; Edition 7, 10/93
- Chlorine Institute Manual Pamphlet 64 – Emergency Response for Chlorine Facilities; Edition 5; 11/00
- Vendor Info on the Gas Detection System, pressure indicators, valves, chlorinator

Facility documentation includes a checklist comparison of how existing system complies with The Chlorine Institute Pamphlets listed above. This checklist evaluation is performed annually by Caravan Ingredients. The checklist includes an evaluation of the existing system with ANSI, manufacturers', and Chlorine Institute standards.

A spot field check confirmed that the P&ID was representative of the actual equipment configuration.

There was no documentation available for review regarding design of the ventilation system in the chlorine storage room, the chlorination area, or the agitation area

Process Hazard Analysis (PHA) [*40 CFR 68.67*]

The initial PHA was completed on 12/16/93. A simple checklist review was conducted (21 questions). The first five-year PHA revalidation was conducted on 4/2/02, utilizing the HAZOP method. The 4/2/02 study was performed by a team including facility personnel (management and operator), corporate, and outside equipment expert (Caravan Ingredients).

A second PHA revalidation was conducted on 5/2/07. The 5/2/07 PHA revalidation utilized both a checklist review and HAZOP, as a team-based approach.

The 5/2/07 checklist review included several 'NO' responses to questions regarding the safe design/operation of the system. There were neither recommendations nor explanation of these responses.

Standard Operating Procedures (SOPs) [*40 CFR 68.69*]

The facility has written operating procedures for the following activities:

- Start-up: initial, following emergency shutdown, following repair
- Start-up: normal
- Start-up: after temporary shutdown, emergency shutdown not involving a release, for single chlorinator
- Shutdown: normal weekend
- Shutdown: temporary
- Shutdown: emergency (chlorine release)
- Shutdown: emergency (other than chlorine release)
- Removing empty cylinders

- Installing fresh chlorine cylinders
- Chlorinator

The most recent certification of the SOPs was on 8/6/09, with the previous certification on 6/12/07. The SOPs were not annually certified as required on 2008.

Several of the SOPs appear to be generic and not specific to the chlorine system installed at this facility. For example, the procedure for 'shutdown – temporary' states: "Turn off remotely operated valves (if equipped)." (emphasis added) The procedure should be specific to this particular system. Likewise, the procedure for operation of the chlorinator states: "The pressurized chlorine will be introduced into the Gas Pressure Reducing Valve (GPRV) and/or a Vacuum Regulator-Pressure Check unit (VRPC)." (emphasis added) The procedure should be specific to this particular system.

The written procedures do not include a description of safety systems utilized in the process, such as the chlorine detectors.

Training [*40 CFR 68.71*]

Reviewed by USEPA.

Mechanical Integrity [*40 CFR 68.73*]

Maintenance, including inspections and tests of the chlorine system are performed by Caravan Ingredients (formerly American Ingredients Company). A "Chlorine System Maintenance Schedule", which specifies a schedule for annual, bi-annual (every two-years), five-year, and 10-year inspections and tests. As with the SOPs described above, this is a generic schedule and not specific to the process installed at this facility. Additionally, there was no documentation available regarding completed inspections / tests, such as replacement of gaskets on the chlorinator and sensors on the chlorine gas detectors.

Caravan Ingredients performs routine inspection of the chlorine system every two-months.

The 1-ton chlorine cylinder system was installed in June 2007 so there is no record of five or 10-year maintenance.

There was no record of inspections/tests of the overhead crane/hoist used to move the 1-ton chlorine cylinders.

Management of Change (MOC) [*40 CFR 68.75*] & Pre-Startup Review (PSR) [*40 CFR 68.77*]

Reviewed by USEPA.

Compliance Audits [*40 CFR 68.79*]

The facility completed a PSM audit on 8/6/09. However, since the 'first time' RMP registration was submitted on 6/18/07, the first RMP three-year audit is not due until June 2010. Therefore this requirement is N/A at the time of this inspection.

Incident Investigation [*40 CFR 68.81*]

Reviewed by USEPA.

Employee Participation [*40 CFR 68.83*]

Reviewed by USEPA.

Hot Work Permit [*40 CFR 68.85*]

Reviewed by USEPA.

Contractor Safety [*40 CFR 68.87*]

Reviewed by USEPA.

Emergency Response [*40 CFR 68.90 – 68.95*]

Reviewed by USEPA.

FACILITY TOUR

Several items noted during the facility tour include:

- An exhaust ventilation fan in the chlorine cylinder storage room must be manually activated in the event of a chlorine leak (vs. automatic activation to prevent unsafe accumulation of chlorine vapors in the chlorine storage room). Facility management explained that this was necessary since the exhaust ventilation fan vents to a loading area. While the loading area is not continuously manned, this venting location does present potential exposure hazards to facility personnel in the event of a chlorine release in the storage room. **The facility should evaluate the chlorine storage room exhaust ventilation fan vent location to determine if an unsafe condition exists, whether automatic activation of the exhaust ventilation fan should be installed, and take corrective action as appropriate.**

- There were no Chlorine B Kits on-site (repair kits for 1-ton cylinders). Facility management explained that since facility personnel are not trained on use of the Kits and are not trained as emergency responders, that Kits were not required to be on-site. Management further explained that they expect off-site HAZMAT responders would have a Kit and would be trained in its use. The Chlorine Institute's Chlorine Manual (6th Edition), Section 4.8 states:

  Chlorine use or storage locations should either have the appropriate Institute emergency kit(s) or containment vessel(s) readily available with emergency responders trained in their use or have a formal arrangement with an outside emergency response group that can respond to emergencies using such equipment.

  The facility should evaluate the need to have a Chlorine B Kit(s) on-site or have a formal arrangement with an outside emergency response group that can respond to emergencies using such equipment, in accordance with the Chlorine Institute's Chlorine Manual (considered an industry standard).

- The facility does not employ automatic shutoff valves on the 1-ton chlorine cylinders that will automatically close upon detection of chlorine from a chlorine leak. **The facility should evaluate installation of this state-of-the-art safety system.**

- A digital readout from the chlorine detector in the chlorine storage room is visible at the entrance to the outer room leading to the chlorine storage room, to warn employees of a potential chlorine leak inside the room prior to entering. There is a second entrance to the chlorine storage room from the warehouse area. There is no indication of chlorine levels in the storage room at this second entrance. Facility management explained that this door is typically locked minimizing its use for entering the room. The Chlorine Institute's Chlorine Manual (6th Edition), Section 7.1 states*: "At least two exits should be provided from each separate room or building in which chlorine is stored, handled or used. Exit doors should not be locked and should open outward."* Additionally, Section 7.2.1 states: *"Safeguards should be in place to insure that persons do not remain in nor enter buildings where chlorine is present due to a leak or equipment failure without the appropriate personal protective equipment."*
  The facility should evaluate whether indication of chlorine leak inside the chlorine storage room should be provided at the entrance to the storage room from the warehouse area (per Section 7.2.1 of the Chlorine Manual) and its compliance with the Chlorine Manual, Section 7.1 (considered an industry standard).

FINDINGS/RECOMMENDATIONS

Process Safety Information (PSI) [*40 CFR 68.65*]

- There was no documentation available for review regarding design of the ventilation system in the chlorine storage room, the chlorination area, or the agitation area. **The facility should prepare PSI on the ventilation system design related to the chlorine storage room, chlorination area, and agitation area, as required by 40 CFR 68.65(d)(1)(v).**

Process Hazard Analysis (PHA) [*40 CFR 68.67*]

- The 5/2/07 checklist PHA revalidation review included several 'NO' responses to questions regarding the safe design/operation of the system. There were neither recommendations nor explanation of these responses. **The facility should establish a system to address the team's findings including developing a schedule of when actions are to be completed, as required by 40 CFR 68.67(e).**

Standard Operating Procedures (SOPs) [*40 CFR 68.69*]

- The most recent certification of the SOPs was on 8/6/09, with the previous certification on 6/12/07. The SOPs were not annually certified as required on 2008. **The facility should ensure that all written operating procedures related to the RMP covered processes are reviewed / certified annually, as required by 40 CFR 68.69(c).**

- Several of the SOPs appear to be generic and not specific to the chlorine system installed at this facility. For example, the procedure for 'shutdown – temporary' states: "Turn off remotely operated valves (if equipped)." (emphasis added) Likewise, the procedure for operation of the chlorinator states: "The pressurized chlorine will be introduced into the Gas Pressure Reducing Valve (GPRV) and/or a Vacuum Regulator-Pressure Check unit (VRPC)." (emphasis added) **The facility should ensure that written operating procedures are specific to the equipment utilized, as required by 40 CFR 68.69(a).**

- The written procedures do not include a description of safety systems utilized in the process, such as the chlorine detectors. **The facility should ensure that the written operating procedures include a description of safety systems and their function, as required by 40 CFR 68.69(a)(4).**

Mechanical Integrity [*40 CFR 68.73*]

- The chlorine system maintenance schedule is a generic and not specific to the process installed at this facility. **The facility should ensure that mechanical integrity program is specific to equipment in the covered process, as required by 68.73(b).**

- There was no documentation available regarding some completed inspections / tests, such as replacement of gaskets on the chlorinator and sensors on the chlorine gas detectors. **The facility should ensure that the mechanical integrity program includes documentation of each inspection and test performed, as required by 68.73(d)(4).**

- There was no record of inspections/tests of the overhead crane/hoist used to move the 1-ton chlorine cylinders. **The facility should establish an inspection and test schedule for all covered equipment, including but not limited to the overhead crane/hoist used to move the 1-ton chlorine cylinders, as required by 40 CFR 68.73(d)(1), (2), (3), and (4).**